

Title: **Reference Materials on Environmental Justice:
A Document History**

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Date: **July 19, 1999**



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ABSTRACT

The purpose of this document is to provide an up-to-date summary of implementation efforts regarding environmental justice (EJ) concerns within the National Environmental Policy Act (NEPA) process. On February 11, 1994, President Clinton signed Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order and accompanying Presidential Memorandum emphasize the role of Federal agencies in providing equal protection for all people under the environmental statutes of the United States. Each Federal agency was charged with the responsibility of developing an EJ strategy. NEPA is intended to be a major legislative tool with which to consider the potential for disproportionately high and adverse environmental and human health impacts of Federal actions on minority and low-income populations.

This document begins by reviewing Executive Order 12898 and the accompanying Presidential Memorandum. The document then follows implementation efforts through the Environmental Protection Agency and Council on Environmental Quality before covering the EJ strategies of specific Federal agencies. Special attention is given to the Department of Energy EJ strategy and the way in which Sandia and Los Alamos National Laboratories have addressed EJ concerns. Notes are provided at the end of each major section to emphasize certain aspects of EJ implementation. This document is intended to serve as a reference for further work that incorporates EJ concerns into the NEPA process at Los Alamos National Laboratory.

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1.0 INTRODUCTION

This document provides an up-to-date summary of implementation efforts regarding environmental justice (EJ) concerns within the National Environmental Policy Act (NEPA) process. The organization of the document is intended to present a document history of EJ implementation efforts beginning with Executive Order 12898 and proceeding through various EJ guidelines and strategies of Federal agencies. Special attention is given to the Department of Energy (DOE) EJ working draft strategy and the way in which Sandia and Los Alamos National Laboratories have addressed EJ concerns. Notes are provided in bold at the end of each major section to emphasize, and at times critique, certain aspects of EJ implementation. This document is intended to serve as a reference and starting point for NEPA analysts beginning to address EJ concerns.

2.0 BACKGROUND

2.1 Executive Order 12898

On February 11, 1994, President Clinton signed Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.” The Order states that each Federal agency “shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations” (Clinton 1994a, 1). Each executive agency was ordered to create an EJ strategy. The order specified that each EJ strategy must “at a minimum”:

1. Promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations.
2. Ensure greater public participation.
3. Improve research and data collection relating to the health of the environment of minority populations and low-income populations.
4. Identify differential patterns of consumption of natural resources among minority populations and low-income populations (Clinton 1994a, 2).

Executive Order 12898 considers research, data collection, and analysis responsibilities in great detail. These responsibilities include environmental human health research (“whenever practicable and appropriate”) and the identification of “multiple and cumulative exposures” in diverse segments of the population (Clinton 1994a, 3). Such studies should consider segments of the population at high risk from environmental hazards “such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards” (Clinton 1994a, 3).

Agencies are required to collect, maintain, and analyze data comparing environmental and human health risks borne by segments of the population identified by race, national origin, or income. Such information should be gathered specifically for areas surrounding facilities or sites that are expected to have a substantial environmental, human health, or economic effect on the surrounding population. The agency shall gather all information that is “readily accessible and appropriate” and use this information to determine whether programs, policies, or activities will have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The research strategies of the agencies should provide minority and low-income populations the opportunity to comment on the research design.

Executive Order 12898 also requires agencies to assess the differential patterns of subsistence consumption of fish and wildlife. “Whenever practicable and appropriate the agency shall collect, maintain, and analyze information on the consumption patterns of populations who rely heavily on fish and/or wildlife and communicate the risk to this population.”

2.2 Memorandum for the Heads of All Departments and Agencies

The accompanying memorandum to Executive Order 12898 (Clinton 1994b) emphasizes existing legal provisions that should be used to ensure EJ. These include Title VI of the Civil Rights Act of 1964, the National Environmental Policy Act of 1969 (NEPA), the Freedom of Information Act, the Sunshine Act, and the Emergency Planning and Community Right-to-Know Act.

The president writes that government officials in the NEPA process, “whenever feasible,” should address adverse environmental effects of proposed Federal actions on minority communities and low-income communities. This should take place whenever mitigation measures are considered in an environmental assessment (EA), environmental impact statement (EIS), or record of decision (ROD). Opportunities should be provided for community input throughout the NEPA process. The Environmental Protection Agency (EPA) shall ensure that each agency has fully analyzed environmental effects on minority and low-income communities through agency review under the Clean Air Act. Such a review will consider human health, social effects, and economic effects of agency actions.

2.3 The Connection between Executive Order 12898 and NEPA

The Council on Environmental Quality (CEQ) has highlighted several ways in which the NEPA statute accommodates EJ considerations. NEPA’s fundamental policy recognizes “that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.” The goals of NEPA include the following:

1. To “assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.”
2. To “attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.”
3. To “preserve important historic, cultural, and natural aspects of our natural heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.”
4. To “achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities” (CEQ 1998, 5).

NOTE: Executive Order 12898 places great emphasis on a number of topics related specifically to minority populations and low-income populations. Each of these topics requires substantial data, some may require new research and data collection.

- **Identifying differential patterns of consumption of natural resources (specifically fish and wildlife).**
- **Identifying multiple and cumulative exposures.**
- **Workers who may be exposed to substantial environmental hazards.**

The Order requires *comparative* research on population segments demarcated by “race, national origin, or income.” This may directly impact research at Los Alamos National Laboratory (LANL) or other New Mexico sites. Nearly half of the New Mexico population (49.6%) is composed of minorities. A baseline population may have to be drawn from a geographic region outside of or beyond the state to constitute a true comparison according to “race” or “national origin.”

3.0 STRATEGIES AND GUIDANCE

3.1 EPA Guidance

In April of 1998 the EPA released their “Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analyses” to serve as guidance for the incorporation of EJ goals into the preparation of EISs and EAs. It provides procedures for addressing disproportionate adverse effects, as well as methods for communicating with the affected population throughout the process (EPA 1998, 5). EJ issues must be considered throughout the NEPA process, “from the initial phases of the screening analysis through the consideration and communication of all alternatives and associated mitigation techniques” (EPA 1998, 9).

The EPA defines “environmental justice” as:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies (EPA 1998, 6).

The EPA guidance clarifies several factors that must be considered in EJ analysis.

3.1.1 Defining Minority and Low-Income Populations

- A minority is taken to mean all self-identified non-white people as well as all Hispanics.
- A significant minority population exists if it covers over 50 percent of the affected area.¹
- A minority population may be present if the minority population percentage of the affected area is “meaningfully greater” than the minority population percentage in the general population or other “appropriate unit of geographic analysis.” This may be a political unit, census tract, or “other similar unit.”²
- The analyst should use the potentially affected population under various alternatives as a comparative device whenever possible³.
- Census data often misses heavy “pockets” of minority populations. Analysts should attempt to identify such high concentration areas by other means.
- Groups residing just outside of the affected area may also be affected due to demographic factors.
- A relatively small minority population may be disproportionately affected within the affected area due to the group’s use of/dependence on affected natural resources or close proximity to the source (EPA 1998, 10-11).
- Low-income populations should be identified with the annual statistical poverty thresholds from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty.⁴ Decennial

¹ Affected area is taken to mean that area which the proposed project will or may have an effect on.

² Analysts must be careful not to artificially inflate or dilute the affected minority population through the choice of geographic unit for analysis.

³ However, if all options fall in minority neighborhoods, this would not be a useful comparative device.

⁴ The Analyst should also consider state and regional low-income and poverty definitions “as appropriate.”

census data are used to depict low-income/poverty statistics.⁵ Growth estimates may also be calculated based on census data.

- As with affected minority definitions, analysts should consider low-income groups lying just outside the affected area that experience adverse effects due to demographic factors.
- Conditions often associated with poverty (e.g., health and housing statistics) should also be analyzed to determine if the aggregate measure of median income for an area masks poverty (EPA 1998, 11-12).

3.1.2 Determining Significance and Estimating Effects

- “Significance” should be evaluated in terms of “intensity” or “severity of impact” (EPA 1998, 25). There may be significant effects on small pockets of populations that would be overlooked on a larger scale.
- Disproportionately high and adverse effects encompass both human health and environmental effects.
- The analyst must consider the cumulative effects on a community by “addressing the full range of consequences of a proposed action as well as other environmental stresses which may be affecting the community.”
- These variables may include the number and concentration of point and nonpoint release sources (permitted and nonpermitted); the presence of listed or highly ranked toxic pollutants with high exposure potential; multiple exposure sources and/or paths for the same pollutant; historical exposure sources and/or pathways; potential for aggravated susceptibility due to existing air pollution, lead poisoning, existence of toxic sites; and frequency of impacts.
- The sources of this data include health data reflective of the community, occupational exposures to environmental stresses, and diets.
- The appropriate risk thresholds should be figured comparatively.⁶

The EPA guidance points out that in defining a substantial environmental hazard the factors to consider are the likelihood, seriousness, and magnitude of the impact. The analyst should consider 1) whether there exists a potential for disproportionate risk; 2) whether communities have been sufficiently involved in the decision-making process; and 3) whether communities currently suffer, or have historically suffered, from environmental and health risks or hazards.

The EPA summarizes the factors to consider in EJ analysis in the following way:

Demographic Factors	Geographic Factors	Economic Factors	Human Health and Risk Factors	Factors Related To Cultural and Ethnic Differences	Factors Related To Historical and Policy Issues
Race	Climate	Income Level	Emissions	Public Access	Industrial Concentration
Ethnicity	Geomorphic Features	Access to Health Care	Toxics	Cultural Expectations	Inconsistent Standards
Income	Hydrophic Features	Infrastructure Conditions	Exposures	Meaningful Information	Research Gaps
Age		Life-Support Resources	Pollutants	Job Security	Program Gaps

⁵ Additional sources may be necessary. For example, state government agencies such as the Department of Economic Development, Planning and Development Department, State Minority Business Office, and State Enterprise Zone Offices, as well as State universities, may offer relevant information.

⁶ Methods for determining cumulative effects are described within CEQ’s January 1997 handbook entitled “Considering Effects Under the National Environmental Policy Act.”

table cont.

Demographic Factors	Geographic Factors	Economic Factors	Human Health and Risk Factors	Factors Related To Cultural and Ethnic Differences	Factors Related To Historical and Policy Issues
Population Density		Distribution of Costs	Pesticides	Literacy Rate	Non-Inclusive Processes
Population Literacy		Community Economic Base	Locations	Translations	Past Practices
Population Growth			Concentrations	Community Representation	Cultural Diversity
Economic Growth			Health Data	Community Identification	Obligations
			Research Gaps	Indigenous Populations	
			Data Collection		

The EPA guidance presents a framework for implementing NEPA requirements. The NEPA process is broken down into the following stages:

1. **Definitions:** Define the purpose and need for the action.
2. **Screening:** Preliminary delineation of potential impacts.
3. **Scoping:** Outline proposed action; define objectives; define scope; identify decisions that need to be made; focus resources; initiate public participation.
4. **Affected Resources:** Define the resources that may be affected if the action meets the proposed objectives.
5. **Alternatives:** Identify and define practical alternatives for meeting objectives.
6. **Mitigation:** Identify possible mitigation measures to minimize or avoid potential impacts.
7. **Consequences:** Predict the environmental impacts and other consequences of the proposed action and alternatives.
8. **Decisions:** Make decisions regarding a course of action, including mitigation measures developed to address environmental effects threatened by proposed actions.
9. **Monitoring:** Observing, recording, and documenting mitigation measures to evaluate their effectiveness (EPA 1998, 21).

All EISs and EAs should document the extent to which EJ issues have been identified and addressed. However, the analyst must first assess whether there will be potential physical or natural environmental impacts. *If* there will be no such effects, *then* this is documented and no further analysis is necessary. *If* there is a potential for such effects, *then* a more detailed EJ study is necessary. EJ issues should be raised throughout the entire NEPA process.

3.1.3 Environmental Screening Analysis

Question 1: Does the potentially affected community include minority and/or low-income populations?

- The EPA recommends that the analysts use census data supplemented with other resources such as local questionnaires, interviews, economic studies, and geographic information system (GIS) technology.

- Analysts must also correlate the demographic analysis to the area most likely to bear environmental effects (i.e., the closer the population is to the action, the greater the potential impacts) (EPA 1998, 23-24).

Question 2: Are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community?

- An affirmative answer initiates enhanced efforts to involve the community, research into multiple/cumulative effects, and impacts on cultural, historical, and protected resources (even when the affected population is not concentrated in the vicinity).
- A negative answer simply requires that the screening analysis be documented in EISs/EAs and RODs/findings of no significant impact (FONSI) (EPA 1998, 24).

3.1.4 Scoping, Planning, Identification of Affected Resources, and Identification of Alternatives

- Alternatives to the proposed action that may mitigate direct, indirect, and cumulative impacts should be considered.
- “Mitigation measures should be developed and alternatives should be crafted so as to allow an evaluation of the relative disproportionality of impacts across reasonable alternatives” (EPA 1998, 26).
- The analyst “should use all means available” to identify natural resources “that, if affected by the proposed action, could have a disproportionately high and adverse effect on minority and/or low-income communities” (EPA 1998, 27).
- The goal is not to distribute the impacts proportionally or divert them to a non-minority or higher-income community.
- Instead the typical alternatives will be a) the identification of alternate locations or sites where impacts to susceptible populations or environments will be avoided; b) altering the timing of planned activities or periodic emissions to account for seasonal dependencies on natural resources; c) the adoption of pollution prevention practices and policies to reduce or mitigate emissions and/or impacts; d) reducing the size or intensity of an action; or e) taking no action (EPA 1998, 28).

3.1.5 Prediction of Environmental Consequences, Mitigation Measures, and Decisions

- Three types of actions: connected, cumulative, and similar.
- Three types of alternatives: no action, other reasonable course(s), and mitigation.
- Three types of impacts: direct, indirect, and cumulative.
- EJ concerns must be identified and analyzed within the context of “all actions, alternatives and impacts” (EPA 1998, 29).
- Reducing pollutant loadings through changes in processes or technologies.
- Reducing or eliminating other sources of pollutants or impacts to reduce cumulative effects.
- Planning for and addressing indirect impacts before project initiation.
- Providing assistance to an affected community to ensure that it receives at least its fair share of the anticipated benefits of the proposed action.
- Relocating affected communities upon request or with concurrence from affected individuals.
- Establishment of a community oversight committee to monitor progress and identify potential community concerns.
- Changing the timing of impact-causing actions to reduce effects.
- Conducting medical monitoring on affected communities and providing treatment or other responses if necessary.

- “All EPA NEPA decision documents should include a concise summary of all steps undertaken to identify environmental justice concerns and the results of those steps” (EPA 1998, 30).

3.2 CEQ Guidance

The CEQ presents guidance for incorporating EJ concerns into the NEPA process. CEQ lays out the following general principles:

- Determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so, whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.
- Consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards to the extent such information is reasonably available. Agencies should consider these multiple or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action.
- Recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.
- Agencies should develop effective public participation strategies and assure meaningful community representation in the process. Agencies should seek tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments, the federal government’s trust responsibility to federally-recognized tribes, and any treaty rights (CEQ 1998, 6-7).

The CEQ guidance contains an appendix on implementation which clarifies several terms and processes.

NOTE: The EPA Guidance indicates that if the analyst determines that there are no potential physical or natural environmental impacts NO FURTHER ANALYSIS IS NECESSARY. However, the type of demographic information necessary for an EJ analysis is relatively stable. It would be a great benefit to have the bulk of this data readily available.

Once again, the “appropriate level of geographic analysis” for a comparative study is difficult to determine—nearly half of the New Mexico population is composed of minorities.

At several points the EPA makes it clear that census data alone is not adequate to identify minority and low-income populations. They suggest local questionnaires, interviews, and regional economic studies.

Groups outside of the region of influence (ROI) may be exposed through other demographic characteristics (e.g., work) and should be considered.

Note the emphasis on

- Identifying populations with dependence on potentially affected natural resources.
 - Consideration of a population’s proximity to the source.
 - Cumulative exposures, including work-related and historic exposures.
-

3.2.1 Definitions

Low-Income Population

Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another or a set of individuals where either type of group experiences common conditions of environmental exposure or effect (CEQ 1998, 18).

Minority

Individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic (CEQ 1998, 18).

Minority Population

Minority populations should be identified where either

- The minority population of the affected area exceeds 50 percent or
- The minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.⁷

Disproportionately High and Adverse Human Health Effects

Consider the following:

- Whether the health effects, which may be measured in risks and rates, are significant (as employed by NEPA) or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death.
- Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group.
- Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards (CEQ 1998, 18-19).

Disproportionately High and Adverse Environmental Effects

Consider the following:

- Whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment.
- Whether environmental effects are significant (as employed by NEPA) and are or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably

⁷ The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds (CEQ 1998, 18).

exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group.

- Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards (CEQ 1998, 19).

Differential Patterns of Consumption of Natural Resources

- The term “differential patterns of consumption of natural resources” relates to subsistence and differential patterns of subsistence and means differences in rates and/or patterns of fish, water vegetation and/or wildlife consumption among minority populations, low-income populations, or Indian tribes, as compared to the general population (CEQ 1998, 21).

Environmental Hazard and Substantial Environmental Hazard

- Means a chemical, biological, physical or radiological agent, situation or source that has the potential for deleterious effects to the environment and/or human health. Among the factors that may be important in defining a substantial environmental hazard are the likelihood, seriousness, and magnitude of the impact (CEQ 1998, 22).

Environmental Exposure

- Means contact with a chemical, biological, physical, or radiological agent (CEQ 1998, 23).

Multiple Environmental Exposure

- Means exposure to any combination of two or more chemical, biological, physical, or radiological agents (or two or more agents from two or more of these categories) from single or multiple sources that have the potential for deleterious effects to the environment and/or human health (CEQ 1998, 23).

Cumulative Environmental Exposure

- Means exposure to one or more chemical, biological, physical, or radiological agents across environmental media (e.g., air, water, soil) from single or multiple sources over time in one or more locations that have the potential for deleterious effects to the environment and/or human health (CEQ 1998, 23).

Subsistence Consumption of Fish and Wildlife

- Dependence by a minority population, low-income population, Indian tribe, or subgroup of such populations on indigenous fish, vegetation, and/or wildlife as the principal portion of their diet (CEQ 1998, 24).

Differential Patterns of Subsistence Consumption

- Differences in rates and/or patterns of subsistence consumption by minority populations, low-income populations, and Indian tribes as compared to rates and patterns of consumption of the general population (CEQ 1998, 24).

The CEQ guidance makes a number of recommendations on the analysis of EJ issues within NEPA. Demographic data from the Bureau of the Census (BOC), Federal, tribal, State, and local health, environmental, and economic agencies can be utilized with GISs to graphically access EJ data (CEQ 1998, 12).

3.3 DOE Working Draft EJ Strategy as it Relates to NEPA

3.3.1 DOE EJ Strategies

Summarized as follows:

- Reaching out to minority and low-income populations to encourage their participation in the development of NEPA documents.
- Disseminating NEPA process information in appropriate formats and in locations accessible to minority and low-income populations.
- Using the NEPA process to develop data collection practices for use in NEPA evaluations of human health or environmental impacts to minority and low-income populations.
- Addressing minority and low-income populations in the “affected environment” and “environmental consequences” sections of NEPA documents to identify any disproportionately high and adverse impacts on minority or low-income populations.
- Addressing “demographics and socioeconomic factors unique to health-related issues, multiple contamination sources, multiple exposure possibilities, unique risk scenarios, and unique use of fish and wildlife by specific communities for subsistence consumption or for religious observances, as appropriate, in the impact analyses.”
- Identifying mitigation options for any disproportionately high and adverse human health or environmental effects with representatives of minority and low-income populations (DOE 1998, 5).

3.3.2 Population

The DOE strategy dictates that the first step in incorporating EJ concerns is identifying the populations. Populations may be defined by geographic/administrative boundaries, by common ethnic background, and by common practices or environmental exposures. The NEPA analyst should determine the demographics for each alternative’s areas of potential impacts.

Demographic data should be gathered from a variety of sources. These include the U.S. Census as well as DOE staff that live near relevant sites, EJ data bases and interest groups, and community groups.⁸ The analyst should present the population information in census tracts (or smaller units), or by common pathways of exposure.

NOTE: The CEQ guidance places emphasis on a number factors:

- **Multiple and Cumulative Exposures, including those related to cultural, social, occupational, historical, and economic characteristics.**
- **Adverse effects that include ecological, cultural, human health, economic and social characteristics interrelated with impacts on natural or physical environment.**
- **Differential patterns of consumption.**

Like the EPA, CEQ suggests going beyond census data and utilizing GIS technology.

⁸ See People of Color Environmental Groups, 1994-1995 Directory. Robert D. Bullard. Online from the Eco Justice Network at <http://www.igc.org/envjustice/>.

3.3.3 Three Classes of NEPA Review

Proposed Federal actions fall into one of three classes of NEPA review: 1) those that require an EIS; 2) those that require an EA but not necessarily an EIS; and 3) those that normally do not require either an EIS or an EA. One criterion for determining the level of review is the “significance” of potential impacts. Consideration of impacts on minority and low-income populations may lead to the identification of disproportionately high and adverse human health or environmental effects that are significant and that otherwise would be overlooked (DOE 1998, 11).

3.3.4 Sliding Scale Approach

DOE guidance offers a “sliding scale approach” in determining the extent of analysis to undertake. This method suggests that “the preparer should analyze issues and impacts with the amount of detail that is commensurate with their importance.” Thus, the level of analysis appropriate for a particular type of impact to a minority or low-income population may vary based on the importance (or intensity) of the impact (DOE 1998, 12). The degree of public participation or outreach can also be adjusted according to the sliding scale approach.

3.3.5 Techniques for Assessing EJ Impact Analysis

DOE guidance presents a number of techniques for assessing EJ impact analysis. These techniques are intended for “the upper end of the sliding scale with regard to importance of impact.”

- To be disproportionately high and adverse, human health impacts may be either “significant (as employed by NEPA) or above generally accepted norms.”
- To be disproportionately high and adverse, environmental impacts must be “significant (as employed by NEPA).”
- Compare impacts between the minority or low-income population and the general population.
- Compare impacts on minority and low-income populations to impacts on the entire general population, not another subset of the general population (e.g., the non-minority or high-income population or recreational hunters and anglers).
- Conduct quantitative or qualitative analysis of potential adverse impacts, as feasible. Mechanisms of impact on a population such as cultural practices, exposure pathways, aspects of the receptor, and consumption rates of natural resources may only be qualitative or anecdotal.
- Describe quantitatively or qualitatively any health or economic sensitivities unique to the minority or low-income population (unique sensitivities).
- Differential access to health care.
- Differential access to public services (paved roads or municipal water supplies).
- Higher rates of cancer, asthma, or other diseases.
- Differences in dietary practices.
- Reliance for employment on a single major business or industry (including a DOE facility) potentially impacted by a proposed action or alternative.
- Any natural resource on which a population depends economically, the availability of which may be impacted by the action or alternatives, such as a natural resource from which art is made and sold for profit.

- In analyzing cumulative impacts, consider that minority and low-income populations may be affected by different past, present, or reasonably foreseeable future actions than the affected general population.⁹
- Verify that all the exposure models used in a risk assessment adequately describe the consumption patterns of identified minority or low-income populations.
- Different exposure pathways must also be considered. These include cultural or religious resources, consumption of particular foodstuffs, subsistence fishing, hunting, or farming, and the physical layout of a population.
- Consider impacts from transportation routes and settlement patterns.

3.4 Other Agencies: EJ Strategy as it Relates to NEPA

3.4.1 Department of Defense

The Department of Defense (DoD) is developing uniform standards for the collection, manipulation, and display of EJ data. They have combined census data with information gathered from members of the local community, universities, and other government agencies. The DoD has also utilized their health research laboratories and other government health agencies (the Surgeon General and the Agency for Toxic Substances and Disease Registry) to gather relevant EJ data. The DoD health research includes work on risks related to natural resource consumption and workplace exposures. Finally, the DoD has conducted case studies in areas targeted for potential EJ concerns.

3.4.2 General Services Administration

The General Services Administration (GSA) guidance notes that NEPA analysts should consider both residents of an affected area and nonresidents who use the affected area. The GSA guidance suggests using census data in conjunction with information from local social service agencies.

NOTE: DOE strategy emphasizes the importance of research into multiple and cumulative exposures and different consumption patterns among minority and low-income populations. In particular, the strategy notes that reliance for employment on a single major business or industry (including a DOE facility) must be considered.

DOE also places importance in quantitative and qualitative measures that extend beyond census data. These methods may include information gathering from DOE staff that live near relevant sites, EJ databases, interest groups, and GIS technology.

DOE employs a “sliding scale” approach in deterring the extent of analysis to undertake. This means that the level of analysis appropriate for a particular type of impact to a minority or low-income population may vary based on the importance or intensity of the impact. The degree of public participation may also be adjusted according to the sliding scale approach.

⁹ See CEQ (Council on Environmental Quality), 1997. *Considering Cumulative Effects under the National Environmental Policy Act*. Washington, D.C.

3.4.3 Department of Justice

The Department of Justice aims to provide a more equitable distribution of unavoidable environmental burdens. For the purposes of the Justice Department, an “environmental justice” matter is any civil or criminal matter where the conduct or action at issue may involve a disproportionate and adverse environmental or human health effect on an identifiable low-income or minority community or federally-recognized tribe. The mere presence of environmental hazards in a particular community does not in and of itself mean that an EJ problem is addressable in litigation. Additional factors must be considered, such as the accumulation of a number of environmental hazards in an affected area because of the lack of public participation by the community, lack of adequate protection under the laws designed to protect health and the environment, or unusual vulnerability of the community to such hazards. Factors to be considered:

1. Whether individuals, certain neighborhoods, or federally-recognized tribes suffer disproportionately adverse health or environmental effects from pollution or other environmental hazards.
2. Whether individuals, certain neighborhoods, or federally-recognized tribes suffer disproportionate risks or exposure to environmental hazards, or suffer disproportionately from the effects of past underenforcement of state or federal health or environmental laws.
3. Whether individuals, certain neighborhoods, or federally-recognized tribes have been denied an equal opportunity for meaningful involvement, as provided by law, in governmental decision-making relating to the distribution of environmental benefits or burdens. Such decision-making might involve permit processing and compliance activities (Department of Justice 1994).

NOTE: The DoD has combined data collected from members of the local community with census data and data from universities and government agencies. The DoD is also creating uniform standards for the collection, manipulation, and display of data. Case studies may be a valuable tool in this process. DoD health research groups have been employed to gather relevant health data. DOE could do something similar. The DoD considers the high risks associated with workers.

The GSA notes that people not in the immediate area may be impacted.

The Department of Justice emphasizes that the accumulation of a number of environmental hazards in an affected area could present a legal issue if public participation has been lacking. “Meaningful involvement” of the affected community seems to be critical in the legal ramifications of EJ.

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4.0 IMPLEMENTATION AT THE SUB-AGENCY LEVEL

4.1 Addressing EJ under NEPA at Sandia National Laboratories

Sandia National Laboratories (SNL) proposes a five-step method for reconciling public participation and objective analysis of demographic information. The five steps are as follows:

1. Characterizing the baseline population.
2. Identifying and analyzing potential adverse impacts.
3. Characterizing the potentially impacted population(s).
4. Comparing the potentially impacted population to the baseline population.
5. Developing an EJ issues management plan.

4.1.1 Characterizing the Baseline Population

The baseline population is a “larger population to which the potentially impacted populations can be compared to determine whether they are disproportionately impacted” (Cohen and Bleakly 1997, 4). SNL considers race, ethnicity, and income. Census and other data are used to determine the racial and ethnic breakdown and income level of the population in a geographic area surrounding a specific location. Other demographic factors “that could be addressed” include population age, population density, population literacy, and population/economic growth. Certain geographic factors may also lead to high-risk populations, these include climate, geomorphic features, and hydrogeologic features (Cohen and Bleakly 1997, 5).

Economic factors are divided into (1) the economic condition of individuals within the community and (2) the overall economic base of the community. Individual economic factors include income level/health care access, infrastructure conditions, and life-support resources (Cohen and Bleakly 1997, 6). Community economic factors include industrial (reliance on polluting industries for jobs, etc.), brownfields (relative ability to finance rehabilitation), and reliance on natural resources of economic base (Cohen and Bleakly 1997, 6).

Cohen and Bleakly (1997) write that a “community profile” can supplement census data. A community profile is a comprehensive summary of the key characteristics of the people of a community or study area. The following are factors to consider in a community profile:

- Local History
- Industries and Occupations
- Development Issues
- Organizations and Leadership
- Communication Channels
- Knowledge and Attitudes Towards a Facility, Site, or Agency
- Populations Potentially Affected
- Observations and Conclusions (Cohen and Bleakly 1997, 7-8)

4.1.2 Identifying and Analyzing Potential Adverse Impacts

If disproportionately high adverse impacts are possible from the proposed action, mitigation measures or other reasonable course of action that has fewer impacts or less disproportionate impact should be

analyzed. If no adverse impacts are identified for the proposed action, a full-blown EJ analysis may not be necessary. Impacts affecting environment, health, safety, and socioeconomics should be considered.

Impacts are considered direct, indirect, or cumulative. Direct impacts are immediate and local impacts on affected individuals or communities. Indirect impacts are those that occur over time rather than immediately. Cumulative impacts result from the incremental affect of past or present impacts when added to reasonably foreseeable future impacts caused by or associated with the proposed action. The following are factors to consider: emissions, toxics, exposures, pollutants, locations, concentrations, health data, research gaps, and data collection (Cohen and Bleakly 1997, 8-9).

4.1.3 Characterizing Potentially Impacted Populations

Cohen and Bleakly (1997) argue that characterization includes determining the racial and ethnic breakdown, and income level of the people impacted by the proposed action. The same assumptions and methodology used in identifying the baseline minority and low-income population should be used (Cohen and Bleakly 1997, 9).

4.1.4 Comparing Potentially Impacted Population(s) to Baseline Population

“If the percentage of minority and/or low-income individuals residing in the potentially impacted area is significantly higher than the percentage of minority and/or low-income individuals residing in the baseline area, the potential for environmental justice concerns exists” (Cohen and Bleakly 1997, 10). The following criteria are used to determine disproportionality:

1. Is there an impact on the natural or physical environment that significantly and adversely affects a minority or low-income community? Such effects may include ecological, cultural, economic, or social impacts on minority or low-income communities that are interrelated to impacts on the natural or physical environment.
2. Are environmental effects significant and will an adverse impact on minority or low-income populations appreciably exceed (or be likely to appreciably exceed) those on the general population or other appropriate comparison group?
3. Will the environmental effects occur in a minority or low-income population affected by cumulative or multiple adverse exposures from environmental hazards? (Cohen and Bleakly 1997, 10).

4.1.5 Developing an EJ Issues Management Plan (IMP)

Cohen and Bleakly suggest the IMP as a bridge between technical analysis and public participation. The following factors should be considered to facilitate effective public participation:

- | | |
|---|-------------------------------|
| • Public Access | • American Indian Populations |
| • Cultural Expectations (understandings of the decision-making process) | • Industrial Concentration |
| • Meaningful Information | • Inconsistent Criteria |
| • Job Security (fear of losing job addressed) | • Research Gaps |
| • Literacy Rate | • Program Gaps |
| • Translations | • Non-inclusive Processes |
| • Community Representation | • Past Practices |
| • Community Identification | • Cultural Diversity |
| | • Obligations |

4.1.6 Hypothetical Case Study at SNL

Cohen and Bleakly consider the baseline population of the area surrounding SNL within a 50-mile radius. They use BOC data to determine race, ethnicity, and income separately on a block group level (a cluster of city blocks generally containing between 250 and 550 housing units).

Cohen and Bleakly also employ an Environmental Justice Index that was developed by EPA Region VI. The index incorporates the race, income, and total population per square mile of each block group into a measure, which ranges from 0 to 100. The higher the number, the more potential exists for environmental justice issues. This enables the ranking and comparing of multiple sites.¹⁰ Other factors may be added to the index. Population ranking is on a scale of zero to four.

Population per Square Mile	Population Ranking
0	0
> 0 and ≤ 200	1
> 200 and ≤ 1000	2
> 1000 and ≤ 5000	3
> 5000	4

Minority populations are ranked from one to five:

Percentage of Minority Residents in Block Group	Minority Ranking
\leq State Average	1
> State Average, but $\leq 1.33 \times$ State Average	2
> $1.33 \times$ State average, but $\leq 1.66 \times$ State Average	3
> $1.66 \times$ State Average, but $\leq 1.99 \times$ State Average	4
$= 2 \times$ State Average	5

NOTE: Cohen and Bleakly satisfy many of the EPA and CEQ guidelines in their community profile. This is an excellent way to characterize the affected community. A community profile can be prepared in advance of any impact. It is a tool that involves the community and gathers useful information.

The problem with the demographics in the State of New Mexico is evident in the methodology. Cohen and Bleakly use the area surrounding SNL as a baseline. However, this may not be an ideal comparative study because the surrounding area is itself predominately composed of minorities.

Similarly, the EJ index uses State averages as a standard. This limits the usefulness of the index. Perhaps national averages would present a better comparative EJ picture.

The general notion of an EJ index could be very useful and is easily adapted to include various factors. However, it must be noted that the resulting index score can mask underlying disproportionate effects.

¹⁰ Although a higher rank indicates more concern, even a rank of zero may have significant EJ issues.

The scoring criteria for low-income populations is based on a scale of one to five.

Percentage of Low-Income Residents in Block Groups	Economic Ranking
≤ State Average	1
> State Average, but ≤ 1.33 X State Average	2
> 1.33 X State Average, but ≤ 1.66 X State Average	3
> 1.66 X State Average, but ≤ 1.99 X State Average	4
≥ 2 X State Average	5

The EJ Index formula = {Population Ranking} * {Minority Ranking} * {Economic Ranking} (Cohen and Bleakly 1997, 21-22).

4.2 DOE Draft EIS—Supplement to the Surplus Plutonium Disposition, April 1999

This document utilizes BOC block group data in an ROI of 50 miles. Block groups that are not wholly within the ROI are given an upper limit (considering the entire population of the block group) and a lower limit (excluding the population of the block group). Population projections were conducted based on BOC projections (www.census.gov/population/www/projections/stproj.html). Populations residing in the potentially affected areas in 1990 were adopted as a baseline, but comparisons are also made to national averages (DOE 1999).

4.3 Department of the Army—Base Realignment and Closure Manual

This manual suggests the CEQ “Cumulative Effects Analysis Handbook for NEPA Practitioners” as guidance. Cumulative effects are to be explored in the scoping process with the following issues considered:

- Is the proposed action one of several similar past, present, or future actions in the same geographic area?
- In what way do other agencies or activities in the region have environmental effects similar to those of the proposed action?
- Will the proposed action, in combination with other planned activities, affect any natural resources, cultural resources, social or economic units, ecosystems, or pollutants of regional, national, or global public concern?
- Have any recent NEPA analyses or ongoing NEPA analyses (of similar-type actions in the nation or any other actions in the region) identified important adverse or beneficial cumulative effects issues?
- Have impacts been historically significant or controversial, such that the importance of a resource is defined by past loss, past gain, and investments to restore resources to adequate levels or conditions?

The following areas of concern must also be addressed:

- Public health and safety beyond the site area
- Air quality parameters of regional significance
- Waterborne pollutants in a regionally important water body
- Wastes that are candidates for disposal in regional, state, or federal disposal or storage facilities
- Wetlands
- Migratory populations or habitats of fish and wildlife
- Historic, cultural, or archeological resources
- Federal and state threatened and endangered species or federally designated critical habitat.

The Department of the Army has also developed an economic impact forecast system (EIFS) which can be used to address the economic impacts associated with the NEPA process and measure their significance (Department of the Army 1995). The EIFS is a national database covering the 3,700 counties, parishes, and independent cities that are reporting units to the Department of Commerce. The EIFS user identifies the ROI, and the system figures preset economic variables while it also accepts input data.

4.4 EJ within the LANL Site-Wide Environmental Impact Statement (SWEIS)

DOE has not identified any disproportionately high and adverse human health or environmental impacts on minority or low-income populations under any of the actions or alternatives analyzed in the LANL SWEIS.

The DOE EJ Strategy has four goals:

1. To identify and address programs, policies, and activities of the DOE that may have disproportionately high and adverse human health or environmental effects on minority and low-income populations.
2. To enhance the credibility and public trust of the DOE by making public participation a fundamental goal of all program operations, planning activities, and decision-making.
3. To improve research and data collection methods relating to human health and the environment of minority and low-income populations by incorporating full characterizations of risks, including the identification of different patterns of subsistence consumption among such populations.
4. To further DOE leadership by integrating EJ criteria, as appropriate, with activities and processes related to human health and the environment.

A minority population refers to an area where minority individuals comprise 25 percent or more of the population. A low-income population refers to a community in which 25 percent or more of the population is characterized as living in poverty according to BOC figures.

NOTE: This is the most comprehensive coverage of cumulative effects as they related to EJ issues that I have encountered.

The EIFS is a measure that can be adapted to fit LANL needs. It would be useful to identify the factors and algorithms employed by the EIFS system. This is a tool that could be useful as is or may yield itself to an adaptation specific to the LANL ROI.

The impacts explicitly addressed in the EJ analysis include impacts to land resources, geology, soils, water resources, ecological resources, air quality, human health, waste management, socioeconomics, and transportation, including projected impacts due to contamination from past LANL activities.

DOE also analyzed human health impacts from exposure through special pathways including ingestion of game animals, fish, native vegetation, surface waters, sediments, and local produce; absorption of contaminants in sediments through the skin; and inhalation of plant materials (LANL SWEIS, EJ n.d.).

The SWEIS uses a 50-mile radius centered around the emissions stack at the Los Alamos Neutron Science Center (LANSCE) in technical area (TA) 53. The LANSCE stack is the primary source of LANL airborne radionuclide emissions. The 50-mile radius was patterned after the methodology used by the National Regulatory Commission (NRC) for assessing potential risks to populations from nuclear power plants.

The SWEIS divides the region with four additional circles, overlaid on a 1990 Census map. Sixteen arcs divide the circles. GIS software incorporates census data into these sectors of various sizes. All minority population and income data used in this assessment are based on 1990 U.S. Census data.

Nearly 54% of the population within the 50-mile radius area is minority. Within New Mexico, minorities make up 49.6% of the total state population. Fifteen percent of the 50-mile radius area is living in poverty. Within New Mexico, 21% of the population lives below the poverty threshold (LANL SWEIS).

NOTE: It may be useful to explore other ROI measures (e.g., less than 50 miles). The SWEIS divides the ROI by circles and arcs. Although this is a method that goes beyond census based spatial analysis, “pockets” of low-income and/or minority populations may have been missed. A community profile would greatly enrich this data.

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